REMARKS

Claims 1 and 29 are rejected under 35 USC 103a as being unpatentable over Reber (6,393,070) in view of Connell et al. (5,977,840)

Applicant asserts that claims 1 and 29 should not be found unpatentable over Reber in view of Connell et al. because there is no motivation to combine said references. Additionally, even if combined, applicant asserts that the resulting combination does not include all limitations of the present invention as claimed in claims 1 and 29.

Concerning the lack of motivation to combine the teachings of Connell et al. with those of Reber, the Examiner stated that "It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required relationship between switch and capacitor and precharge circuitry in Reber as taught by Connell et al. in order to have a semiconductor device with increased performance."

Reber states in col 3 (lines 23-26) that "according to the present invention, the functionality of the second mixer stage and of analog-to-digital conversion is combined. Preferably, the combined circuit is a modified sigma delta bit stream analog-to-digital converter." Reber teaches the "detailed diagram of a first order sigma delta modulator modified according to the present invention" (col 4, lines 42-43) as shown in Figure 4. In contrast, Connell et al. teach "an integrated low power TCXO that has a fast startup time with improved phase noise" (col 2, lines 4-6) to solve the problem that "integrated circuit (IC) based TCXOs have been unable to achieve three millisecond startup times" (col 1, lines 44-45) due to being required to include " a low-pass filter with a twenty millisecond time constant to sufficiently attenuate output noise from the temperature compensation circuit" (col 1, lines 31-33).

Applicant points out that the circuit and teachings of Reber do not include an IC based TCXO or any temperature compensation component. Additionally, there is no low-pass filter with a large time constant utilized by Reber. Therefore, applicant asserts there is no reason to combine the teachings of Connell et al. with that of Reber. That is, the teachings of Reber

when viewed as a whole do not teach or suggest any benefit from the combination of the teachings of Connell et al when viewed as a whole because the teachings of Connell are directed at components not found in the circuit of Reber (e.g., an IC based TCXO and a low-pass filter with a large time constant) and a problem not found in the circuit structure taught be Reber (e.g., slow startup of the low-pass filter). Therefore, applicant asserts there is no motivation for a person having ordinary skill in the art at the time the invention was made to include the required relationship between switch and capacitor and precharge circuitry in Reber as taught by Connell et al. in order to have a semiconductor device with increased performance, as was stated would be obvious by the Examiner. It is not obvious because Connell et al. do not teach or suggest how their invention can be utilized to increase the performance of semiconductor devices such as Reber's that do not have an IC based TCXOs and a large time constant filter that takes a long time to charge at startup.

Applicant is also not clear what Examiner means by it would be obvious to include "the required relationship between the switch and capacitor and precharge circuitry in Reber as taught be Connell et al." That is, even if combined, applicant asserts that the combination of Reber and Connell et al. does not include all limitations of the present invention as claimed in claims 1 and 19. In particular, applicant asserts that the combination of the teachings of Connell et al. with those of Reber does not include "a precharge circuit coupled to the first positive side node for precharging the first positive side node to a precharge voltage for a predetermined time when the first positive side switch element is switched off according to the first control signal, and then for charging the first positive side node to a charge voltage until the first positive side switch element is switched on according to the first control signal" (emphasis added), as is claimed in claim 1 of the present invention. Similarly, the combination of the teachings of Connell et al. with those of Reber does not include the steps of "precharging the first positive side node to a precharge voltage for a predetermined time when the switched capacitor circuit is switched off according to the first control signal; and then charging the first positive side node to a charge voltage until the switched capacitor circuit is switched on according to the first control signal" (emphasis added), as is claimed in

claim 29 of the present invention.

Concerning the underlined portions indicated above, the examiner stated that "Reber fails to disclose the required switching structure with relationship to the capacitor and precharge circuitry. However, Connell et al. disclose a circuit for minimizing turn-on time of temperature compensated crystal oscillator". Applicant points out that the teachings of Connell et al. are specifically directed at reducing the turn-on time of the temperature compensated crystal oscillator. In particular, referring to col 3, lines 1-11, Connell et al. teach "A capacitor precharge circuit 24 disables the low-pass filter (represented by switch S) and precharges the filter capacitance C1 during a turn-on time for the temperature compensated crystal oscillator such that the delay from the temperature compensating control signal 10 to the oscillator input is substantially less than the delay through the low-pass filter when the low-pass filter is enabled, and the capacitor precharge circuit 24 enables the low-pass filter after the turn-on time such that the temperature compensating control signal 10 is substantially not disturbed by the precharge circuit during the turn-on time." This operation of the precharge circuit 24 of Connell et al. is further explained in col 4, lines 42-45 stating, "a second step includes switchably disconnecting the filter capacitance from the low-pass filter when power is first applied to the temperature compensated crystal oscillator." Connell et al. do not teach charging the first positive side node to a charge voltage until the first positive side switch element is switched on according to the first control signal, this charging operation being performed after precharging the first positive side node to a precharge voltage for a predetermined time when the first positive side switch element is switched off according to the first control signal. In particular, the precharge circuit 24 of Connell et al. only charges the capacitor C1 after power is first applied to the temperature compensated crystal oscillator during the turn-on period of the circuit. This is not equivalent to the present invention as claimed in claims 1 and 29 therefore applicant asserts that even if combined, the combination of Reber and Connell et al. also does not include all limitations of the present invention as claimed in claims 1 and 29.

For at least the reasons that there is no motivation to combine the teachings of the

cited reference by Connell et al. and the teachings of Reber, and because even if combined, the resulting combination of the teachings of Connell et al. and Reber does not include all limitations of the present invention as claimed in claims 1 and 29, applicant asserts that claims 1 and 29 should not be found unpatentable over Reber in view of Connell et al. Reconsideration of claims 1 and 29 is respectfully requested.

Additionally, concerning the patentability of claim 29 with respect to the teachings of Reber and Connell et al., applicant points out that the capacitor C1 of Connell et al. is not taught to be coupled to an oscillator node of the switched capacitor circuit. Therefore, applicant asserts that claim 29 should not be found unpatentable over Reber in view of Connell et al. Reconsideration of claim 29 is respectfully requested.

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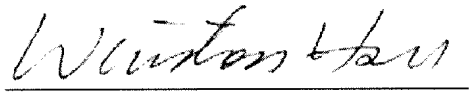

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